# MONTANA

## Teachers' Retirement System

### Component Unit of the State of Montana




# ANNUAL REPORT

## FISCAL YEARS ENDED JUNE 30, 1994 AND 1993

Marc Racicot, Governor

# TEACHERS' RETIREMENT SYSTEM

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MARC RACICOT, GOVERNOR

STATE OF MONTANA

October 28, 1994

Honorable Marc Racicot
Governor of Montana
Room 204, State Capitol
Helena, MT 59620

Dear Governor Racicot:

On behalf of the Montana Teachers' Retirement Board, it is my pleasure to submit to you the 1994 Financial Report for the Teachers' Retirement System.

In its 57th year of operation, the Montana Teachers' Retirement System has assets with a market value in excess of $1 billion. The growth in the Retirement System continues to be steady. At fiscal year's end, the active membership exceeded 17,400 members and annuitants totaled over 7,100 receiving pension benefits in excess of $5.6 million per month. The financial integrity and actuarial soundness of the system are attested by the accompanying reports.

The Board is committed to assuring that the retirement funds are managed prudently for the sole benefit of the members.

Sincerely,

David L. Senn
Executive Director

DLS:pe

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## THE TEACHERS' RETIREMENT SYSTEM
## DIRECTORS AND OFFICERS

### BOARD OF DIRECTORS

| | | |
|---|---|---|
| JAMES COWAN<br>CHAIRMAN | 07-01-92 to 07-01-96 | P.O. Box 369<br>Seeley Lake, MT 59868 |
| DR. RICK STUBER | 07-01-94 to 07-01-98 | P. O. Box 615<br>Culbertson, MT 59218 |
| E. JOSEPH CROSS | 07-01-91 to 07-01-95 | 2518 Augusta Lane<br>Billings, MT 59102 |
| JOHN U. KRANICK | 07-01-93 to 07-01-97 | 116 River View C<br>Great Falls, MT 59404 |
| SHARON OFTEDAL | 07-01-93 to 07-01-97 | Broadus Stage<br>Miles City, MT 59301 |
| NANCY KEENAN | Ex Officio | Superintendent of<br>Public Instruction<br>State Capitol<br>Helena, MT 59620 |

### ADMINISTRATIVE OFFICERS

| | |
|---|---|
| DAVID L SENN | Administrator |
| GARY WARREN | Assistant Administrator |

### PROFESSIONAL CONSULTANTS

| | |
|---|---|
| MILLIMAN & ROBERTSON, INC. | Actuaries & Consultants<br>Seattle, WA 98101 |

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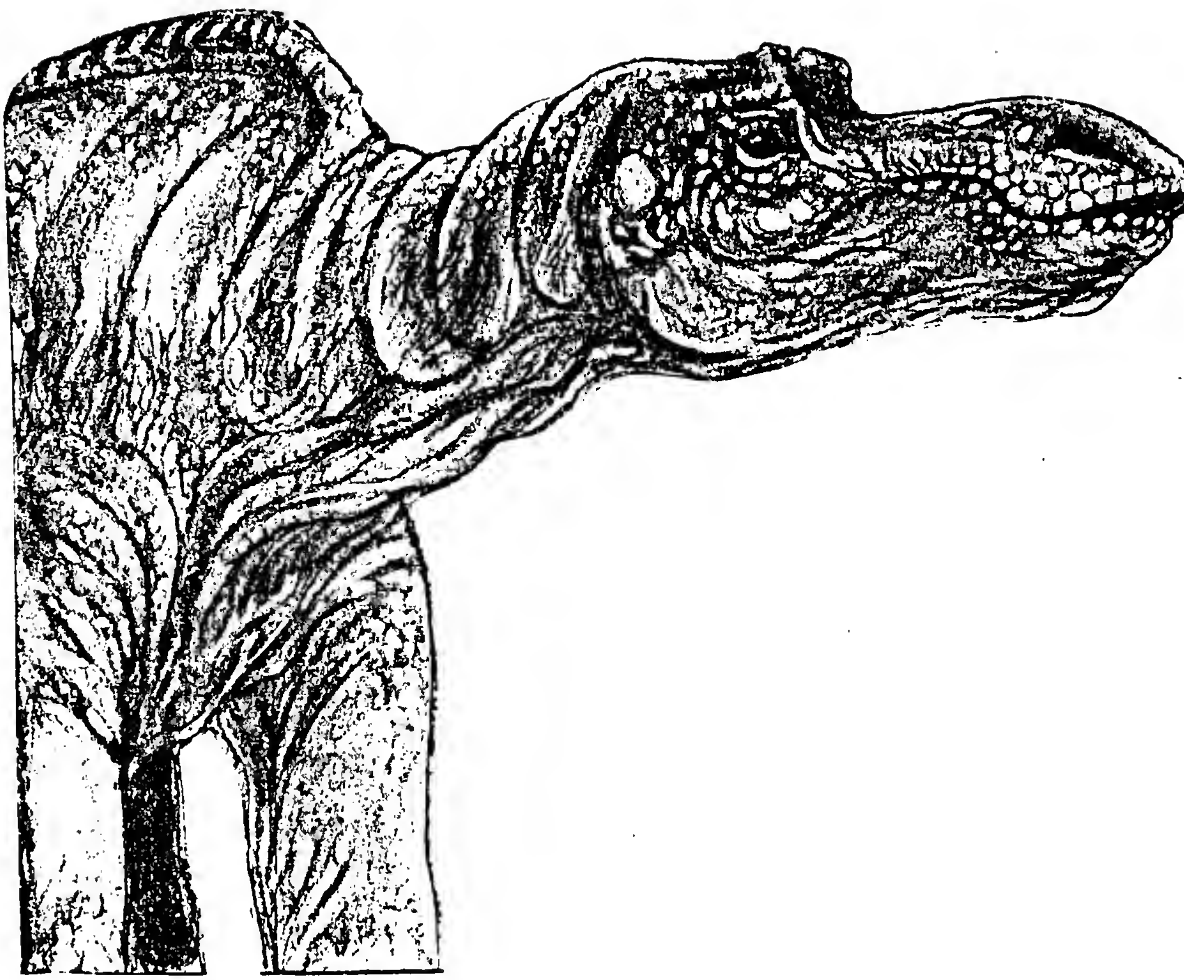
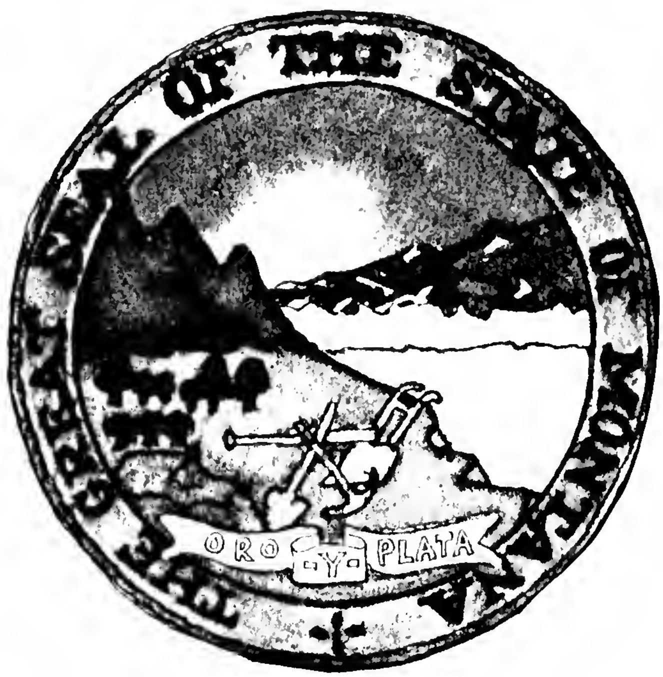


# FINANCIAL SECTION

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STATE OF MONTANA

# Office of the Legislative Auditor

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MARY BRYSON
Operations and EDP Audit

JAMES GILLETT
Financial-Compliance Audit

JIM PELLEGRINI
Performance Audit

## INDEPENDENT AUDITOR'S REPORT

We have audited the accompanying financial statements of the Teachers' Retirement System, a component unit of the state of Montana, for each of the two fiscal years ended June 30, 1993 and 1994 listed in the table of contents. The information contained in these financial statements is the responsibility of the system's management. Our responsibility is to express an opinion on these financial statements based on our audit.

We conducted our audit in accordance with generally accepted auditing standards. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosure in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audit provides a reasonable basis for our opinion.

In our opinion, the financial statements referred to above present fairly, in all material respects, the financial position of the Teachers' Retirement System at June 30, 1994 and 1993, and the results of its operations for the years then ended.

The trend information contained in Table 8 on page 32 and in the schedules on page 59 is not a required part of the basic financial statements but is supplementary information required by the Governmental Accounting Standards Board. We have applied certain limited procedures, which consisted principally of inquiries of management regarding the methods of measurement and presentation of the supplementary information. However, we did not audit the information and express no opinion on it.

The other data included in this report have not been audited by us, and accordingly, we express no opinion on such data.

Respectfully submitted,

James Gillett

James Gillett, CPA
Deputy Legislative Auditor

November 1, 1994

**TEACHERS' RETIREMENT SYSTEM**
**COMPONENT UNIT OF THE STATE OF MONTANA**
**BALANCE SHEET**
**AS OF JUNE 30, 1994 AND 1993**

| | 1994 | 1993 |
|---|---|---|
| **ASSETS** | | |
| Current Assets: | | |
| Cash | $ 3,755,110 | $ 1,148,775 |
| Accounts Receivable | 11,277,369 | 10,553,367 |
| Interest Receivable | 12,573,660 | 12,621,933 |
| Total Current Assets | 27,606,139 | 24,324,075 |
| Investments (Note A): | | |
| Mortgages | $ 41,200,677 | $ 45,120,945 |
| Securities | 443,845,158 | 457,681,214 |
| Common Stock | 301,819,215 | 248,338,143 |
| Other Investments | 186,450,139 | 150,425,416 |
| Land and Buildings | 193,844 | 193,844 |
| Less: Accum. Depreciation | (90,955) | (87,191) |
| Total Investments | 973,418,078 | 901,672,371 |
| Other Assets: | | |
| Intangible Assets | $ 118,165 | $ 56,160 |
| Equipment | 158,859 | 143,849 |
| Less: Accum. Depreciation | (80,269) | (63,855) |
| Deferred Losses | (755,293) | (1,042,136) |
| Total Other Assets | (558,538) | (905,982) |
| **TOTAL ASSETS** | $1,000,465,679 | $925,090,464 |
| **LIABILITIES** | | |
| Accounts Payable | $ 637,444 | $ 641,736 |
| Accrued Expenditures | 20,000 | 18,789 |
| Payroll Clearing | 3,037 | 3,037 |
| Accountability for Adv. (Note A) | 70,886 | 196,639 |
| Compensated Absences (Note A) | 30,372 | 22,830 |
| Property Held in Trust | 5,572 | (577) |
| Long Term Debts Payable | 105,198 | 76,915 |
| **TOTAL LIABILITIES** | 872,509 | 959,369 |
| **NET ASSETS AVAILABLE FOR BENEFITS** | $999,593,170 | $924,131,095 |

The accompanying notes are an integral part
of these financial statements.

## TEACHERS' RETIREMENT SYSTEM
## COMPONENT UNIT OF THE STATE OF MONTANA
## BALANCE SHEET
## AS OF JUNE 30, 1994 AND 1993

| | 1994 | 1993 |
|---|---|---|
| **FUND BALANCE (Note C)** | | |
| Actuarial present value of projected benefits to: | | |
| Retirees and beneficiaries currently receiving benefits | $ 736,051,087 | $ 634,549,416 |
| Terminated employees not yet receiving benefits | 32,518,975 | 33,778,152 |
| Current employees: | | |
| Accumulated employee contributions | 459,775,565 | 439,208,159 |
| Employer-financed: | | |
| Vested | 342,269,591 | 424,421,945 |
| Nonvested | 15,485,479 | 21,111,397 |
| Total actuarial present value of credited projected benefits | $1,586,100,697 | $1,553,069,069 |
| Unfunded Pension Benefit Obligation (PBO) | (586,507,527) | (628,937,974) |
| TOTAL FUND BALANCE | $ 999,593,170 | $ 924,131,095 |

The accompanying notes are an integral part of these financial statements.

**TEACHERS' RETIREMENT SYSTEM**
**COMPONENT UNIT OF THE STATE OF MONTANA**
**STATEMENT OF REVENUES, EXPENSES, AND**
**CHANGES IN FUND BALANCE**
**FOR THE FISCAL YEAR ENDED JUNE 30, 1994 AND 1993**

| | 1994 | 1993 |
|---|---|---|
| **OPERATING REVENUES** | | |
| Member Contributions | $ 38,748,884 | $ 37,249,490 |
| Employer Contributions | 39,164,487 | 38,088,280 |
| Investment Earnings | 73,073,714 | 78,375,511 |
| Total Operating Revenues | $150,987,085 | $153,713,281 |
| **OPERATING EXPENSES** | | |
| Benefit Payments | $ 70,580,682 | $ 66,012,320 |
| Withdrawals | 4,156,137 | 3,971,610 |
| Administrative Expense (Note F) | 846,164 | 769,820 |
| Total Operating Expenses | $ 75,582,983 | $ 70,753,750 |
| **OPERATING TRANSFERS IN** | | |
| Public Employees Retirement System | 43,358 | 112,520 |
| Income Transfers | 0 | 1,586,710 |
| Total Transfers In | 43,358 | 1,699,230 |
| **OPERATING INCOME** | $ 75,447,460 | $ 84,658,761 |
| **BEGINNING FUND BALANCE** | 924,131,095 | 839,019,471 |
| Adjustments to Fund Balance | 0 | 186 |
| Prior Year Adjustments | 14,615 | 452,677 |
| **ENDING FUND BALANCE** | $999,593,170 | $924,131,095 |

The accompanying notes are an integral part
of these financial statements

# TEACHERS' RETIREMENT SYSTEM
# COMPONENT UNIT OF THE STATE OF MONTANA
# NOTES TO THE FINANCIAL STATEMENTS
# FISCAL YEARS ENDED JUNE 30, 1994 AND 1993

## NOTE A. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

### Basis of Accounting

The Teachers' Retirement System, discretely presented component unit of the State of Montana financial reporting entity, maintains its accounts on the full accrual basis of accounting. Employee and employer contributions are recognized as revenues in the period in which employee services are performed and expenses are recorded when the corresponding liabilities are incurred, regardless of when payment is made.

### Valuation of Investments

Short-term investments and state securities are recorded at cost. Federal and corporate securities are stated at par value decreased by unamortized discounts amounting to $132,690,305 in fiscal year 1994 and $163,310,918 in fiscal year 1993. Mortgages were decreased by unaccumulated mortgage discount of $43,533 in fiscal year 1994 and $55,878 in fiscal year 1993.

The market value of the various investments at June 30, 1994 and 1993, was as follows:

| | 1994 | 1993 |
|---|---|---|
| Montana Common Stock Pool | $357,414,547 | $306,260,991 |
| Montana Convertible Pool | 38,254,615 | 22,852,832 |
| Short-Term Investment Pool | 44,205,000 | 49,752,200 |
| Other Common Stock | 1,471,500 | 121,500 |
| Securities: | | |
| U.S. Government | $157,218,951 | $134,480,539 |
| Corporate Bonds | 446,227,258 | 512,765,628 |
| Securities Subtotal | 603,446,209 | 647,246,167 |
| Other Investments | 24,047,484 | 14,074,651 |
| Montana Mortgages | 41,244,210 | 45,120,945 |
| Land and Buildings | 102,889 | 106,653 |
| | $1,110,186,454 | $1,085,535,939 |

### Gains and Losses on Bond Swaps

The deferral and amortization method was used for accounting for gains and losses on bond swaps. The unamortized deferred gains or losses are netted against the investment account and written off over the life of either the bond sold or acquired, whichever is less.

### Compensated Absences

Compensated absences represent 100 percent of accrued vacation and 25 percent of accrued sick leave for division personnel at June 30, 1994 and June 30, 1993.

### Accountability for Advances

Accountability for advances represents the liability associated with amounts received as an advance from other accounting entities or other governments at June 30, 1994 and June 30, 1993.

### Minnie Fullam Fund

The TRS financial statements do not include the Minnie Fullam (MF) Fund, a legacy fund that is administered by the Teachers' Retirement System. The MF financial statements are presented below:

**Minnie Fullam Fund**
**Balance Sheet**
**As of June 30, 1994 and 1993**

| | 1994 | 1993 |
|---|---|---|
| Assets: | | |
| Cash | $ 281 | $ 533 |
| MT Common Stock Pool | 22,064 | 22,064 |
| Short Term Investments | 27,300 | 24,300 |
| Total Assets | $49,645 | $46,897 |
| Total Fund Balance | $49,645 | $46,897 |

**Minnie Fullam Fund**
**Statement of Revenues, Expenses, and**
**Changes in Fund Balance**
**For the Fiscal Years Ended June 30, 1994 and 1993**

| | 1994 | 1993 |
|---|---|---|
| Investment Revenue | $ 2,768 | $ 2,664 |
| Ad Investment Exp | (20) | 0 |
| Beginning Fund Balance | 46,897 | 44,233 |
| Ending Fund Balance | $49,645 | $46,897 |

## NOTE B. DESCRIPTION OF PLAN

The Teachers' Retirement Board is the governing body of a mandatory multiple-employer, cost-sharing system which provides retirement services to all persons in Montana employed as teachers or professional staff of any public elementary or secondary school, vocational-technical center or unit of the university system. The System was established by the State of Montana in 1937 and is governed by Title 19, Chapter 20, of the Montana Code Annotated.

At June 30, 1994, the number and type of employers participating in the System was as follows:

| | |
|---|---|
| Local School Districts | 415 |
| Community Colleges | 3 |
| University System Units | 6 |
| Vo-Techs | 5 |
| State Agencies | 6 |
| Total | 435 |

At June 30, 1994, the System membership consisted of the following:

| | |
|---|---|
| Retirees and Beneficiaries Currently Receiving Benefits | 7,198 |
| Terminated Employees Entitled to But Not Yet Receiving Benefits | 6,874 |
| Current Members: | |
| Vested | 10,050 |
| Nonvested | 7,389 |
| Total Membership | 31,511 |

The pension plan provides retirement benefits and death and disability benefits. Employees with a minimum of 25 years of service or who have reached age 60 with 5 years of service are eligible to receive an annual retirement benefit equal to 1/60 times creditable service years times the average final compensation. Final compensation is the average of the highest three consecutive years of earned compensation. Benefits fully vest after 5 years of creditable service. Vested employees may retire at or after age 50 and receive reduced retirement benefits.

Effective January 1, 1988, university system employees eligible to participate in the Teachers' Retirement System could elect to participate in an Optional Retirement Plan established by the Board of Regents. As of July 1, 1994, a total of 1,115 eligible university system employees have elected to participate in the Optional Retirement Plan. Effective July 1, 1993, membership in the Optional Retirement Plan is mandatory for new employees to the university system unless they are already a member of the Teachers' Retirement System.

Effective January 1, 1990, certain members of the Teachers' Retirement System are eligible to receive a post retirement adjustment (PRA). The PRA is funded by annual investment earnings in excess of the required 8%. To be eligible, a retiree or beneficiary must be at least 55 years of age or be receiving a disability or survivor allowance and have been receiving a monthly benefit for 24 months preceding June 30 each year. In fiscal year 1994, $2,879,550 was disbursed to eligible recipients.

## NOTE C. FUNDING STATUS AND PROGRESS

The pension benefit obligation is a standardized disclosure of the present value of pension benefits, adjusted for the effects of projected salary increases, estimated to be payable in the future as a result of employee service to date. The measure is the actuarial present value of credited projected benefits and is intended to help users assess the System's funding status on a going-concern basis, assess progress made in accumulating sufficient assets to pay benefits when due and make comparisons with other public employee retirement systems. The measure is independent of the actuarial funding method used to determine contributions to the System.

The pension benefit obligation was determined as part of an actuarial valuation at July 1, 1994. Significant actuarial assumptions at June 30, 1994 include (a) a rate of return on the investment of present and future assets of 8% per year compounded annually, and (b) total projected salary increases of 6.5%. These same assumptions were used in the actuarial valuation at July 1, 1992. An actuarial valuation of the liabilities of the system as of June 30, 1993 was not performed; instead, the pension benefit obligation as of June 30, 1993 was estimated on the actuarial valuation prepared as of June 30, 1992.

At June 30, 1994 and 1993, the unfunded pension benefit obligation was as follows:

| | 1994 | 1993 |
|---|---|---|
| Pension Benefit Obligation: | | |
| Retirees and beneficiaries currently receiving benefits | $ 736,051,087 | $ 634,549,416 |
| Terminated members entitled to but not yet receiving benefits | 32,518,975 | 33,778,152 |
| Current employees: | | |
| Accumulated employee contributions | 459,775,565 | 439,208,159 |
| Employer-financed vested | 342,269,591 | 424,421,945 |
| Employer-financed nonvested | 15,485,479 | 21,111,397 |
| Total Pension Benefit Obligation | $1,586,100,697 | $1,553,069,069 |
| Net Assets Available for Benefits at Cost (Market Value 1994 - $1,136,361,547) (Market Value 1993 - $1,107,994,664) | 999,593,170 | 924,131,095 |
| Unfunded Pension Benefit Obligation | $ 586,507,527 | $ 628,937,974 |

**NOTE D. CONTRIBUTIONS REQUIRED AND CONTRIBUTIONS MADE**

The TRS funding policy provides for periodic employer and employee contributions at rates specified by State Law. An actuary determines the actuarial implications of the funding requirement in biennial actuarial valuations. The actuarial method used to determine the implications of the statutory funding level is the entry age normal funding method, with both normal cost and amortization of the accrued liability determined as a level percentage of payroll. The actuarial valuation prepared as of July 1, 1994, the most recent valuation date, indicates the statutory rate was sufficient to fund the normal cost and to amortize the unfunded accrued liability under the entry age normal method over 31.7 years. During fiscal years 1994 and 1993, no changes were made in the method used to calculate or establish contribution requirements, nor were there any changes in the law affecting benefits.

Actual contributions made to the System during the fiscal year ending June 30, 1994 and 1993, were as follows:

| | 1994 | 1993 |
|---|---|---|
| Covered payroll | $440,462,948 | $445,390,838 |
| Employer contributions | $ 39,164,488 | $ 38,088,280 |
| --% of covered payroll(R) | 7.470% | 7.459% |
| --% of covered payroll(A) | 8.892% | 8.552% |
| Employee contributions | $ 38,748,883 | $ 37,249,490 |
| --% of covered payroll(R) | 7.044% | 7.044% |
| --% of covered payroll(A) | 8.797% | 8.363% |

(R)Contributions required by statute.
(A)Actual contributions.

Employer contributions include transfers from the Public Employees' Retirement System.

**NOTE E. HISTORICAL TREND INFORMATION**

| ANALYSIS OF FUNDING PROGRESS | As of June 30 | | | | | | |
|---|---|---|---|---|---|---|---|
| | 1994 | 1993 | 1992 | 1991 | 1990 | 1989 | 1988 |
| Net assets available for benefits as a % of PBO | 63.0% | 59.5% | 57.9% | 57.7% | 57.1% | 56.4% | 56.2% |
| Unfunded PBO as a % of annual covered payroll | 133.2% | 141.2% | 143.6% | 138.2% | 130.6% | 133.2% | 128.6% |
| Employer contributions as a % of annual covered payroll | 8.892% | 8.552% | 8.411% | 8.231% | 7.734% | 7.428% | 7.428% |

## NOTE F. ADMINISTRATIVE EXPENSES

Administrative expenses for the years ended June 30, 1994 and 1993, are outlined below:

| | 1994 | 1993 |
|---|---|---|
| Personal Services: | | |
| Salaries | $251,292 | $248,596 |
| Other compensation | 2,250 | 2,750 |
| Employee benefits | 65,933 | 64,075 |
| Total Personal Services | $319,475 | $315,421 |
| Operating Expenses: | | |
| Contracted services | $150,968 | $111,856 |
| Supplies and materials | 13,397 | 18,046 |
| Communications | 37,062 | 35,263 |
| Travel | 7,814 | 11,176 |
| Rent | 45,345 | 44,194 |
| Repair and maintenance | 11,954 | 5,934 |
| Other expenses | 8,140 | 2,544 |
| Equipment | 165 | 242 |
| Intangible Assets | 0 | 74 |
| Long Term Debt Expense | 10,308 | 8,194 |
| Compensated Absence | 2,976 | 5,555 |
| Depreciation | 20,368 | 18,171 |
| Amortization | 19,508 | 4,495 |
| Total Operating Expense | $328,005 | $265,744 |
| Investment Expense | 198,684 | 188,655 |
| **Total Administrative Expense** | $846,164 | $769,820 |

During fiscal year 1992, TRS solicited proposals for a new data processing system. Sixty monthly payments of $5,092.08 began on November 29, 1992 and conclude October 29, 1997 for a total debt of $305,524.80 which includes principle and interest of $271,279.34 and $34,245.46 respectively.

# ACTUARIAL SECTION

## ANALYSIS OF VALUATION

1. SUMMARY OF THE FINDINGS
2. SCOPE OF THE REPORT
3. ASSETS
4. ACTUARIAL LIABILITIES
5. EMPLOYER CONTRIBUTIONS
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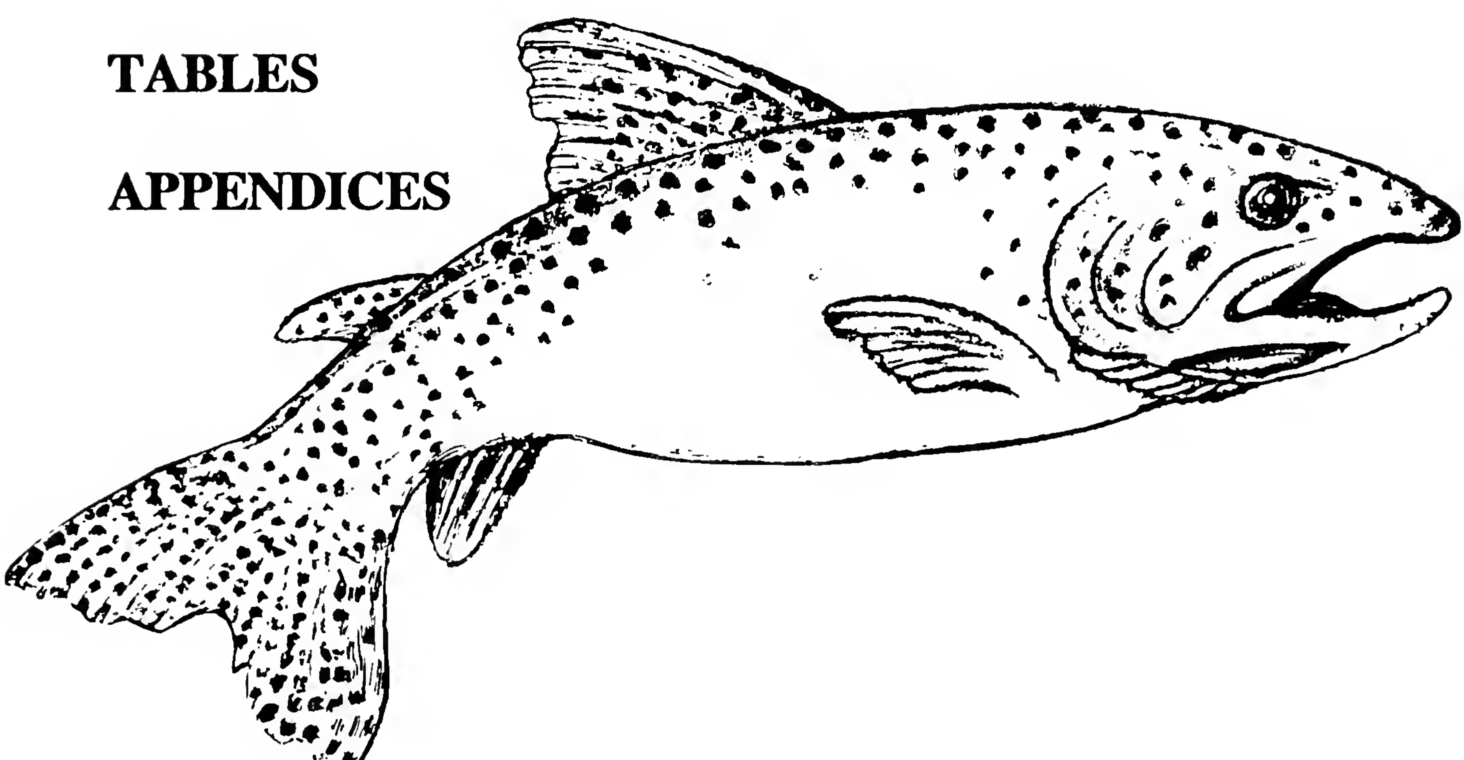


## Teachers' Retirement System
## Analysis of Valuation

### Section 1: Summary of the Findings

As a result of the actuarial valuation of the benefits in effect under the Montana Teachers' Retirement System (TRS) as of July 1, 1994, Milliman & Robertson recommends that the current employer contribution rate, 7.47% of members' salaries, remain in effect.

This rate is sufficient to meet the actuarial cost of the System accruing on the valuation date and to amortize the unfunded actuarial liability over 31.7 years. The actuarial costs are calculated using the entry age actuarial cost method.

The July 1, 1992 actuarial valuation found that the period then required to amortize the unfunded actuarial liability was 34.9 years. Thus, the expected amortization period as of July 1, 1994 was two years less, 32.9 years. The actual amortization period as of July 1, 1994 is less than the expected period because of net actuarial losses during the past two years, which were offset by gains due to the adoption of new assumptions.

### Section 2: Scope of the Report

This report presents the actuarial valuation of the Montana Teachers' Retirement System as of July 1, 1994.

A summary of the findings resulting from this valuation is presented in the previous section. Section 3 describes the assets of the System. A summary of the assets is set forth in Table 1. Sections 4 and 5 describe how the obligations of the System are to be met under the actuarial cost method in use.

Section 6 discloses actuarial information based on the requirements of Statement No. 5 of the Governmental Accounting Standards Board.

The actuarial procedures and assumptions used in this valuation are described in Appendix A.

The current benefit structure, as determined by the provisions of the governing law on January 1, 1994, is summarized in Appendix B. Schedules of valuation data classifying the data used in the valuation by various categories of contributing members, former contributing members, and beneficiaries make up Appendix C.

Appendix D provides a brief summary of the System's recent experience. Comparative statistics are presented on the System's membership and contribution rates. Appendix E is a glossary of actuarial terms used in this report.

### Section 3: Assets

In many respects, an actuarial valuation can be regarded as an inventory process. The inventory is taken as of the actuarial valuation date, which for this valuation is July 1, 1994. On that date the assets available for the payment of benefits are appraised. These assets are compared with the

actuarial liabilities, which are generally well in excess of the assets. The actuarial process thus leads to a method of determining what contributions by members and their employers are needed to strike a balance.

For the July 1, 1989 valuation, the prior actuary adopted a new asset valuation method based on a three-year smoothing between the System's cost value and market value.

The total assets of the System are reduced by a minor portion that is set aside for the payment of current liabilities. The Fullam Fund is also excluded. The resulting net assets equal the total fund balance available for the payment of benefits.

Table 1 summarizes the actuarial value of the net assets available for benefits on July 1, 1994, based on the method adopted by the Board for the July 1, 1989 valuation. The actuarial value of net assets is 101.9% of the market value as of July 1, 1994.

## Section 4: Actuarial Liabilities

In the previous section, an actuarial valuation was related to an inventory process, and an analysis was given of the inventory of assets of the System as of the valuation date, July 1, 1994. In this section, the discussion will focus on the commitments of the System, which will be referred to as its actuarial liabilities.

Table 2 contains an analysis of the actuarial present value of all future benefits for contributing members, for former contributing members, and for beneficiaries. The analysis is given by type of benefit and by sex.

The actuarial liabilities summarized in Table 2 include the actuarial present value of all future benefits expected to be paid with respect to each member. For an active member, this value includes a measure of both benefits already earned and future benefits to be earned. Thus, for all members, active and retired, the value extends over benefits earnable and payable for the rest of their lives and, if an optional benefit is chosen, for the lives of their surviving beneficiaries.

## Section 5: Employer Contributions

In the previous two sections, attention has been focused on the assets and actuarial liabilities of the System. A comparison of Tables 1 and 2 indicates that there is a shortfall in current assets to meet the total actuarial liabilities. This is the universal experience in all but a fully closed-down fund, where no further contributions of any sort are anticipated.

In an active system, there will always be a difference between the actuarial liabilities and the assets. This difference has to be funded with future contributions and investment returns. An actuarial valuation sets a schedule of future contributions that will deal with this funding in an orderly fashion.

The method used to determine the incidence of the contributions in various years is called the actuarial cost method. For this valuation, the entry age actuarial cost method has been used. Under this method, or essentially any actuarial cost method, the contributions required to meet the difference between current assets and current liabilities are allocated each year between two elements:

A normal cost amount, which ideally is relatively stable as a percentage of salary over the years; and

Whatever amount is left over, which is used to amortize what is called the unfunded actuarial liability.

The two items described above, normal cost and unfunded actuarial liability, are the keys to understanding the actuarial cost method.

The normal cost is the theoretical contribution rate which will meet the ongoing costs of a group of average new employees. Suppose that a group of new employees were covered under a separate fund from which all benefits and to which all contributions and associated investment return were to be paid. Under the entry age actuarial cost method, the normal cost contribution rate is that level percentage of pay which would be exactly right to maintain this fund on a stable basis. If experience were to follow the actuarial assumptions exactly, the fund would be completely liquidated with the last payment to the last survivor of the group.

The normal cost rates by type of employee and by type of benefit under the System are summarized in Table 3. Prior assumptions did not specifically recognize a probability of refund of contributions upon termination of a vested member. The new assumption, shown in Table A-6, allows the termination benefits to be shown separately between expected refunds and expected vested retirements.

The normal costs as of July 1, 1992 and July 1, 1994 include .031% to fund the additional cost of the changes to the Vietnam service credit.

The term "fully funded" is often applied to a system where contributions for everyone at the normal cost rate will fully pay for the benefits of existing as well as new employees. More often than not, systems are not fully funded, either because of benefit improvements in the past which have not been completely paid for or actuarial deficiencies which have occurred because experience has not been as favorable as anticipated. Under these circumstances, an unfunded actuarial liability (UAL) exists.

Table 4 shows how the UAL was derived for the System. Lines A and B show, respectively, the total present value of future benefits and the portion of the future liability that is expected to be paid from future normal cost contributions, both employer and employee. Line C shows the actuarial liability: the portion of the present value of future benefits not provided by future normal cost contributions. Line D shows the assets available for benefits. Finally, Line E shows the unfunded actuarial liability.

As can be seen from this discussion, a key consideration in the adequacy of the funding of the System is how the UAL is being amortized. Table 5 shows that the current employer and member contribution rates are adequate to pay the total normal cost rate (9.494% of pay), with enough left over to amortize the UAL in 31.7 years. Therefore, the current basis is sufficient to meet future requirements.

The amortization of the UAL assumes continued contributions of 2.503% of pay for members of the Optional Retirement Program (ORP) until June 30, 2027. The 1993 legislation modified the ORP contribution rate to be set at 2.503% from July 1, 1993 through June 30, 1997, and, effective July 1, 1997 through June 30, 2033, an adjusted rate will be determined based on the actual experience of the members of the Montana university system. Until the adjusted rate is determined, Milliman & Robertson will assume contributions of 2.503% are payable until June 30, 2027, 40 years after the establishment of the ORP in accordance with the initial ORP funding requirements.

The unfunded actuarial liability at any date after establishment of a system is affected by any actuarial gains or losses arising when the actual experience of the system varies from the experience anticipated by the actuarial assumptions used in the valuations. To the extent actual experience as it develops differs from the assumptions used, so also will the actual emerging costs differ from the estimated costs.

In 1985 a target period of 40 years was established for the amortization of the unfunded liability generated at each valuation. Table 6 contains the schedule of unfunded actuarial liability accounts. Also shown is the employer contribution required to meet the 40-year goal, 14.881%. This exceeds the current statutory contribution of 14.514%. The funding target is not met by the current employer contribution rate. With an overall unfunded actuarial liability funding period of 31.7 years, however, we believe the System is actuarially sound and that increases to the statutory contribution rates are not required.

## Section 6: Actuarial Information for Accounting Purposes

Statement No. 5 of the Governmental Accounting Standards Board (GASB) requires disclosure of certain pension information by public employee retirement systems. Each system's funding status on a going-concern basis is determined by comparing its pension benefit obligation (PBO) to the net assets available to fund benefits. Each system is to analyze its funding progress by following the trend of its funding status.

The pension benefit obligation (PBO) is that portion of the actuarial present value of benefits attributable to service earned to date, adjusted for the effects of projected salary increases. It is intended as a standardized disclosure measure which will allow comparisons among different public employee retirement systems. The determination of the PBO is independent of the actuarial cost method, but is dependent upon the actuarial assumptions used to calculate the actuarial present values.

The PBO determined as of July 1, 1994 is shown in Table 7 and is based on the actuarial assumptions used in the valuation as described in Appendix A. It is analyzed separately for inactive members and annuitants and for active members. The active members' PBO is also divided between the employee-financed (accumulated member contributions) and employer-financed portions, with the employer-financed portion shown separately for benefits payable to vested and nonvested members.

The unfunded PBO is the excess of the PBO over the net assets available for benefits, determined in accordance with the method used to value assets for the System's balance sheet purposes. The net asset amount shown on line B was furnished to us, without audit, by the System. The unfunded PBO is shown on line C.

As shown in Table 8, the unfunded PBO has decreased from 141.2% of annual salaries as of July 1, 1993 to 133.2% of annual salaries as of July 1, 1994. The unfunded PBO expressed as a percentage of annual salaries helps to adjust for the effects of salary inflation in the dollar amounts of PBO.

The comparability of the data from year to year can be affected by changes in actuarial assumptions, benefit provisions, accounting policies, etc. Specifically, the July 1, 1994, PBO was based on the newly adopted assumptions, whereas the July 1, 1993, PBO was based on the previous assumptions. As a result of the change in assumptions, Milliman & Robertson estimated that the present value of the PBO is reduced by approximately 6%.

## Teachers' Retirement System

### Table 1

### Summary of Assets

| | Total Fund Balances | | | | | |
|---|---|---|---|---|---|---|
| | Cost Value | Market Value | Cumulative Unrealized Gain | Increase During Year | Smoothing Weights | Smoothed Portions of Gain |
| July 1, 1992 | $839,020,635 | $ 992,146,136 | $153,125,501 | $153,125,501 | 100.00% | $153,125,501 |
| July 1, 1993 | $924,131,095 | $1,107,994,664 | $183,863,569 | $ 30,738,068 | 66.67% | $ 20,492,045 |
| July 1, 1994 | $999,593,170 | $1,136,361,547 | $136,768,377 | $(47,095,192) | 33.33% | $(15,698,397) |

### Actuarial Assets

| | |
|---|---|
| July 1, 1994 Cost Value | $ 999,593,170 |
| Smoothed Portion of Gain | 157,919,149 |
| July 1, 1994 Actuarial Value | $1,157,512,319 |

## Teachers' Retirement System

## Table 2

### Actuarial Present Value of Future Benefits for Contributing Members, Former Contributing Members, and Beneficiaries

July 1, 1994
(All amounts are actuarial present values in millions)

| | Male | Female | Total |
|---|---|---|---|
| A. Active members | | | |
| Service Retirement | $ 530.0 | $ 645.0 | $1,175.0 |
| Disability Retirement | 13.5 | 18.3 | 31.8 |
| Survivors' Benefits | 27.9 | 12.6 | 40.5 |
| Vested Retirement | 11.8 | 21.0 | 32.8 |
| Refund of Member Contributions | 14.9 | 24.5 | 39.4 |
| Total | $ 598.1 | $ 721.4 | $1,319.5 |
| B. Inactive members and annuitants | | | |
| Service Retirement | $ 407.2 | $ 269.7 | $ 676.9 |
| Disability Retirement | 6.7 | 7.4 | 14.1 |
| Beneficiaries* | 6.4 | 38.7 | 45.1 |
| Vested Terminated Participants | 10.5 | 14.5 | 25.0 |
| Nonvested Terminated Participants | 2.2 | 5.3 | 7.5 |
| Total | $ 433.0 | $ 335.6 | $ 768.6 |
| C. Grand Total | $ 1,031.1 | $ 1,057.0 | $2,088.1 |

* Includes survivors of active and retired members, and children's benefits.

## Teachers' Retirement System

## Table 3

## Normal Cost Contribution Rates
## As Percentage of Salary

| | July 1, 1994 | | | July 1, 1992 |
|---|---|---|---|---|
| | Male | Female | Total | Total |
| Service Retirement | 5.926% | 7.252% | 6.687% | 6.522% |
| Disability Retirement | 0.237% | 0.287% | 0.265% | 0.225% |
| Survivors' Benefits | 0.411% | 0.184% | 0.280% | 0.175% |
| Vested Retirement | 0.541% | 0.575% | 0.560% | 2.954%* |
| Refund of Member Contributions | 1.854% | 1.589% | 1.702% | - * |
| Total | 8.969% | 9.887% | 9.494% | 9.876% |

* 1992 assumptions treated vested retirement and refund of member contributions as one category, termination benefits.

## Teachers' Retirement System

### Table 4

### Unfunded Actuarial Liability
### (All dollar amounts in millions)

| | | July 1, 1994 | July 1, 1992 |
|---|---|---|---|
| A. | Actuarial present value of all future benefits for present and former members and their survivors (Table 2) | $ 2,088.1 | $ 1,821.8 |
| B. | Less actuarial present value of total future normal costs for present members | 375.2 | 287.9 |
| C. | Actuarial liability | $ 1,712.9 | $ 1,533.9 |
| D. | Less actuarial value of assets available for benefits (Table 1) | 1,157.5 | 954.5 |
| E. | Unfunded actuarial liability | $ 555.4* | $ 579.4 |

* Of this amount, approximately $20.0 million will be paid by contributions to TRS of 2.503% of the salaries of the participants in the Optional Retirement Plan (ORP).

## Teachers' Retirement System

## Table 5

## Recommended Contribution Rates
## As Percentage of Salary

| | July 1, 1994 | July 1, 1992 |
|---|---|---|
| A. Employer contribution rate | 7.470% | 7.459% |
| B. Member contribution rate | 7.044% | 7.044% |
| C. Total contribution rate | 14.514% | 14.503% |
| D. Less total normal cost rate (Tabel 3) | 9.494% | 9.876% |
| E. Amount available to amortize unfunded actuarial liability* | 5.020% | 4.627% |
| F. Amortization period from July 1, 1994 | 31.7 years | 32.9 years |

* In addition, 2.503% of salaries of the participants in the Optional Retirement Plan (ORP) is available to help amortize the unfunded actuarial liability.

## Teachers' Retirement System

## Table 6

## Unfunded Actuarial Liability Amortization Schedule

| Date Established | Balance on July 1, 1992 | Interest Charge on Balance | Contribution Allocated to Unfunded Liability | Interest Credit on Contribution | Balance on July 1, 1994 |
|---|---|---|---|---|---|
| July 1, 1985 | $717,612,330 | $119,410,692 | $60,334,033 | $4,849,465 | $771,839,524 |
| July 1, 1987 | (13,320,392) | (2,216,513) | (1,119,926) | (90,016) | (14,326,963) |
| July 1, 1989 | (31,567,244) | (5,252,789) | (2,654,050) | (213,324) | (33,952,659) |
| July 1, 1992 | (93,324,694) | (15,529,229) | (7,846,375) | (630,668) | (100,376,880) |
| July 1, 1994 | | | | | (67,783,022) |
| | | | | | $555,400,000 |

## Required Contribution Rates

| Date Established | Remaining Years to Fund | Required Amortization Rates |
|---|---|---|
| July 1, 1985 | 31 Years | 7.365% |
| July 1, 1987 | 33 | (0.313) |
| July 1, 1989 | 35 | (0.297) |
| July 1, 1992 | 38 | (0.828) |
| July 1, 1994 | 40 | (0.540) |
| | | 5.387% |
| Plus Normal Cost Rate | | 9.494 |
| Total Contribution Rate | | 14.881% |

## Teachers' Retirement System

## Table 7

### Unfunded Pension Benefit Obligation
**(All dollar amounts in millions)**

| | July 1, 1994 | | July 1, 1993** | |
|---|---|---|---|---|
| A. Pension Benefit Obligation | | | | |
| Inactive members | | | | |
| Retirees and beneficiaries | $736,051,087 | | $634,549,416 | |
| Other Terminated employees | 32,518,975 | | 33,778,152 | |
| Total Inactive | | $ 768,570,062 | | $ 668,327,568 |
| Active members | | | | |
| Accumulated member contributions | $459,775,565 | | $439,208,159 | |
| Employer-financed vested | 342,269,591 | | 424,421,945 | |
| Employer-financed nonvested | 15,485,479 | | 21,111,397 | |
| Total Active | | 817,530,635 | | 884,741,501 |
| Total pension benefit obligation | | $1,586,100,697 | | $1,553,069,069 |
| B. Less net assets available for benefits* | | 999,593,170 | | 924,131,095 |
| C. Unfunded pension benefit obligation | | $ 586,507,527 | | $ 628,937,974 |

* Assets are valued at cost for the System's balance sheet purposes. Net assets are total assets less fund liabilities. Market value of net assets on January 1, 1994 is $1,136,361,547.

** July 1, 1993 values were based on the June 30, 1992 census, projected to July 1, 1993 on an approximate basis.

## Teachers' Retirement System

## Table 8

## Analysis of Funding Progress

| Reporting Date (July 1) | (1) Net Assets* | (2) Pension Benefit Obligation (PBO) | (3) Percentage of PBO Funded (1)/(2) | (4) Unfunded PBO (2)-(1) | (5) Annual Salaries | (6) Unfunded PBO as Percentage of Annual Salaries (4)/(5) |
|---|---|---|---|---|---|---|
| 1989 | $624,755,142 | $1,107,492,899 | 56.4% | $482,737,757 | $362,464,600 | 133.2% |
| 1990 | 689,225,147 | 1,206,792,010 | 57.1 | 517,566,863 | 396,235,432 | 130.6 |
| 1991 | 761,462,699 | 1,320,000,000 | 57.7 | 558,537,301 | 404,256,229 | 138.2 |
| 1992 | 839,020,635 | 1,449,482,394 | 57.9 | 610,461,759 | 425,125,516 | 143.6 |
| 1993 | 924,131,095 | 1,553,069,069 | 59.5 | 628,937,974 | 445,390,838 | 141.2 |
| 1994 | 999,593,170 | 1,586,100,697 | 63.0 | 586,507,527 | 440,462,948 | 133.2 |

Expressing the net assets available for benefits as a percentage of the pension benefit obligation provides one indication of a Retirement System's funding status on a going-concern basis. Analysis of this percentage over time indicates whether the system is becoming financially stronger or weaker. Generally, the greater this percentage, the stronger the retirement system. Trends in the unfunded pension benefit obligation and annual covered payroll are both affected by inflation. Expressing the unfunded pension benefit obligation as a percentage of annual covered payroll approximately adjusts for the effects of inflation and aids analysis of TRS's progress made in accumulating sufficient assets to pay benefits when due. Generally, the smaller the percentage, the stronger the Retirement System.

*Asset are valued at cost for the System's balance sheet purposes. Net assets are total assets less fund liabilities.

This comparative information is only available from FY 1989 to FY 1994.

# APPENDIX A

## Actuarial Procedures and Assumptions

The actuarial assumptions used in this valuation were adopted by the Board for the July 1, 1994 Actuarial Valuation. The assumptions were changed as a result of Milliman & Robertson's Investigation of Experience, July 1, 1989 - June 30, 1992. These assumptions are summarized in Table A-1.

Tables A-2 through A-5 gives rates of decrement for service retirement, disablement, mortality, and other terminations of employment. These rates of decrement are referred to in actuarial literature as the absolute rate of decrement, or q'x. Table A-6 shows the assumed probability of immediate refund of contributions among members terminating with five or more years of service.

### Actuarial Cost Method

The actuarial valuation was prepared using the entry age actuarial cost method. Under this method, the actuarial present value of the projected benefits of each individual included in the valuation is allocated as a level percentage of the individual's projected compensation between entry age and assumed exit. The portion of this actuarial present value allocated to valuation year is called the normal cost. The normal cost was first calculated for each individual member. The normal cost rate was defined to equal the total of the individual normal costs, divided by the total pay rate as of July 1, 1994.

The portion of this actuarial present value not provided for at a valuation date by the sum of (a) the actuarial value of the assets, and (b) the actuarial present value of future normal costs is called the unfunded actuarial liability. The unfunded actuarial liability is amortized as a level percentage of the projected salaries of present and future members of the System.

### Records and Data

The data used in the valuation consist of financial information; records of age, sex, service, salary, contribution rates, and account balances of contributing members; and records of age, sex, and amount of benefit for retired members and beneficiaries. All of the data were supplied by the System and are accepted for valuation purposes without audit.

### Replacement of Terminated Members

The ages at entry and distribution by sex of future members are assumed to average the same as those of the present members they replace. If the number of active members should increase, it is further assumed that the average entry age of the larger group will be the same, from an actuarial standpoint, as that of the present group. Under these assumptions, the normal cost rates for active members will not vary with the termination of present members.

### Employer Contributions

At the time of this valuation, the total employer contribution rate for normal costs and amortization of the unfunded actuarial liability was 7.470% of members' salaries.

**Administrative Expense**

The administrative expenses of the System are assumed to be funded by investment earnings in excess of 8% per year.

**Valuation of Assets - Cost Basis**

| | |
|---|---|
| Bonds: | Bonds are valued at amortized book value. |
| Mortgages: | Mortgages are valued at par value. |
| Common Stocks: | Each issue of common stock is valued at cost. |
| Other Assets: | Other assets are carried on a cost basis. |

Premiums and discounts are amortized using the straight-life method over the life of the securities (8 years for mortgages).

**Valuation of Assets - Actuarial Basis**

The difference between the total market value of assets and the cost value of assets is added to the cost value on a 3-year smoothed basis.

**Investment Earnings**

The annual rate of investment earnings of the assets of the System is assumed to be 8% per year, compounded annually.

**Interest on Member Contributions**

Interest on member contributions is assumed to accrue at a rate of 6% per annum, compounded annually.

**Postretirement Benefit Increases**

No future postretirement benefit increases are assumed.

**Future Salaries**

The composite rate of future salary increases is assumed to be 6.5% per year, compounded annually. This is the sum of a 6.0% general wage increase assumption and an assumption of 0.5% individual salary increase due to promotion and longevity. This assumption was adopted July 1, 1994.

**Benefits for Terminating Members**

Members terminating with less than five years of service are assumed to request an immediate withdrawal of their contributions with interest. Table A-6 shows the assumed probability of immediate refund of contributions among members terminating with five or more years of service. These rates were adopted July 1, 1994.

The data provided for current terminated vested members did not include their accrued benefit. We estimated each member's accrued benefit based on the available contribution account and service information.

**Part-Time Employees**

The valuation data for active members identifies part-time members, but gives no indication as to the number of hours worked. As done in the past, we imputed a "part-time percentage" by comparing the pay received to the average pay for recently hired full-time members. Part-time members earning less than $1,000 during the last year were valued at their current member contribution balance.

**Optional Retirement Program**

The total contribution received based on ORP payroll for the fiscal year ending June 30, 1994 was $787,837. Based on a contribution rate of 2.503%, we assumed the total ORP payroll for the fiscal year to be $31,475,709 ($787,837 divided by 2.503%).

## Teachers' Retirement System

## Table A-1

## Summary of Valuation Assumptions
## July 1, 1994

| | | |
|---|---|---|
| I. | Economic Assumptions | |
| | A. General Wage Increases | 6.00% |
| | B. Individual salary Increase due to promotion & longevity | 0.50% |
| | C. Investment Return | 8.00% |
| | D. Growth In Membership | 0.00% |
| | E. Postretirement Benefit Increases | 0.00% |
| | F. Interest on Member Accounts | 7.00% |
| II. | Demographic Assumptions | |
| | A. Retirement | Table A-2 |
| | B. Disablement | Table A-3 |
| | C. Mortality Among Contributing Members | Table A-4 |
| | 1983 Group Annuity Mortality (GAM) Table, with ages set back two years | |
| | D. Mortality among service retired and disabled members and beneficiaries | Table A-4 |
| | 1983 GAM Table, with ages set back one year | |
| | E. Other Terminations of Employment | Table A-5 |
| | F. Refund of Contributions upon termination of vested members | Table A-6 |

## Teachers' Retirement System

## Table A-2

## Retirement
## Annual Rates

| Age | Eligible for Reduced Benefits | 1st year Eligible for Full Benefits | Service Retirement |
|---|---|---|---|
| 50 | 5.0% | 15.4% | 10% |
| 51 | 5.3% | 15.6% | 10% |
| 52 | 5.6% | 15.8% | 10% |
| 53 | 6.0% | 16.1% | 10% |
| 54 | 6.3% | 16.4% | 10% |
| 55 | 6.7% | 16.9% | 12.5% |
| 56 | 7.1% | 17.4% | 12.5% |
| 57 | 7.5% | 18.2% | 12.5% |
| 58 | 8.0% | 19.1% | 12.5% |
| 59 | 8.5% | 20.4% | 12.5% |
| 60 to 69 | * | 22.0 | 20.0% |
| 70 | | ** | ** |

* All benefits are unreduced after attaining age 60.

** Immediate retirement is assumed at age 70 or over.

## Teachers' Retirement System

## Table A-3

## Disablement
## Annual Rates

| Age | Disablement |
|---|---|
| 25 | .01% |
| 30 | .02% |
| 35 | .04% |
| 40 | .07% |
| 45 | .12% |
| 50 | .18% |
| 55 | .28% |
| 60 | .42% |

Table A-4

Mortality
Annual Rates*

| Age | Men | Women |
|---|---|---|
| 25 | .05% | .03% |
| 30 | .06% | .03% |
| 35 | .09% | .05% |
| 40 | .12% | .07% |
| 45 | .22% | .10% |
| 50 | .39% | .16% |
| 55 | .61% | .25% |
| 60 | .92% | .42% |
| 65 | 1.56% | .71% |
| 70 | 2.75% | 1.24% |
| 75 | 4.46% | 2.40% |
| 80 | 7.41% | 4.29% |
| 85 | 11.48% | 6.99% |

* Rates shown are set back one year for retirees and two years for active members.

## Teachers' Retirement System

### Table A-5

### Other Terminations of Employment Among Members Not Eligible to Retire Annual Rates

| Age | Rate |
|---|---|
| 25 | 13.78% |
| 30 | 11.41% |
| 35 | 8.30% |
| 40 | 5.84% |
| 45 | 4.19% |
| 50 | 3.60% |
| 55 | 3.02% |
| 60 | 2.67% |

### Table A-6

### Refund of Contributions Upon Termination of Vested Members

| Age | Probability of Immediate Refund |
|---|---|
| 25 | 60% |
| 30 | 54% |
| 35 | 48% |
| 40 | 42% |
| 45 | 36% |
| 50 | 24% |
| 55 | 0% |

# APPENDIX B

## Summary of Benefit Provisions

| | |
|---|---|
| Effective Date | September 1, 1937 |
| Vesting Period | 5 years. No benefits are payable unless the member has a vested right, except the return of employee contributions with interest. |
| Final Compensation | Average of highest 3 consecutive years of earned compensation. |
| Normal Form of Benefits | Life only annuity. All benefits cease upon death; however, in no event will the member receive less than the amount of employee contributions with interest. |
| Normal Retirement Benefits | |
| Eligibility: | 25 years of service or age 60 and 5 years of service. |
| Benefit: | The retirement benefit is equal to 1/60 of final compensation for each year of service. |
| Early Retirement Benefits | |
| Eligibility: | 5 years of service and age 50. |
| Benefit: | The retirement benefit is calculated in the same manner as described for normal retirement, but the benefit is reduced 1/2 of 1% for each of the first 60 months early and 3/10 of 1% for each of the next 60 months early. |
| Death Benefit | |
| Eligibility: | 5 years of service. |
| Benefit: | The death benefit is equal to 1/60 of final compensation for each year of service accrued at date of death, with an actuarial adjustment based on the relation of the member's age at death to the beneficiary's age. A monthly benefit of $200 is paid to each child until age 18. In addition, a lump-sum benefit of $500 is paid upon the death of an active or retired member. |

Disability Benefit

| | |
|---|---|
| Eligibility: | 5 years of service. |
| Benefit: | The disability benefit is equal to 1/60 of final compensation for each year of service accrued at date of disability. The minimum benefit is 1/4 of the final compensation. |

| | |
|---|---|
| Withdrawal Benefits | With less than 5 years of service, the accumulated employee contributions with interest are returned. With more than 5 years, the member may elect a refund of contributions with interest or leave the contributions and interest in the System and retain a vested right to retirement benefits. |
| Tax Sheltered Annuity | The System sponsors a tax-deferred annuity program for the benefit of its members. The policies of this program have been established in accordance with the guidelines set by the Internal Revenue Service. The benefits provided by this program are determined solely by the value of the member's account (voluntary contributions plus interest) using actuarial tables provided by the Retirement Board. |
| Contributions | Member: 7.044% of compensation.<br>Employer: 7.470% of compensation. |

## APPENDIX C

## Valuation Data

The valuation was based upon the membership of the System as of July 1, 1994. Membership data were supplied by the System and accepted for valuation purposes without audit. However, tests were performed to ensure that the data are sufficiently accurate for valuation purposes.

Table C-1 contains summaries of the data for contributing members. For full-time members. values shown in the tables are the numbers of members and their total and average annual salaries. For part-time members, only the numbers of members are shown. All information is shown separately for males and females.

| Members | Full-Time Members | Part-Time Members* | Total Contributing Members* | Annual Full-Time Salaries in Thousands |
|---|---|---|---|---|
| Male | 5,470 | 407 | 5,877 | $181,511 |
| Female | 9,468 | 1,853 | 11,321 | 235,457 |
| Total | 14,938 | 2,260 | 17,198 | $416,968 |

*Excludes 377 part-time members with salaries under $1,000.

Table C-2 presents distributions of the following:

- Members receiving service retirement benefits.
- Members receiving disability retirement benefits.
- Survivors of deceased retired members receiving benefits.
- Survivors of deceased active members.
- Child beneficiaries.
- Terminated vested members.

The valuation also includes liabilities attributable to nonvested members who have terminated employment but have not withdrawn their contributions. There are 5,722 such members.

| Type of Annuitant | Number | Annual Benefits In Thousands |
|---|---|---|
| Service Retirement | | |
| Male | 2,820 | $ 41,162 |
| Female | 3,695 | 30,423 |
| Disability Retirement | | |
| Male | 79 | 656 |
| Female | 130 | 776 |
| Suvivors of Deceased Retired Members | | |
| Male | 64 | 312 |
| Female | 346 | 2,570 |
| Suvivors of Deceased Active Members | | |
| Male | 104 | 440 |
| Female | 249 | 1,741 |
| Child Beneficiaries | 43 | 103 |
| Total Annuitants | 7,530 | $ 78,183 |

Table C-1

# Teachers' Retirement System
## Active Members - Full Time
## Distribution of Employees and Salaries as of July 1, 1994
### Number of Employees - By Age Group - Males

| | Completed Years of Service | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Age | 0 | 1 | 2 | 3 to 4 | 5 to 9 | 10 to 14 | 15 to 19 | 20 to 24 | 25 to 29 | 30 to 34 | 35 to 39 | 40+ | Totals |
| < 25 | 6 | 20 | 4 | 1 | | | | | | | | | 31 |
| 25 to 29 | 61 | 116 | 98 | 90 | 46 | | | | | | | | 411 |
| 30 to 34 | 22 | 42 | 54 | 102 | 174 | 40 | | | | | | | 434 |
| 35 to 39 | 18 | 46 | 40 | 86 | 191 | 232 | 76 | | | | | | 689 |
| 40 to 44 | 15 | 46 | 27 | 62 | 161 | 219 | 346 | 120 | | | | | 996 |
| 45 to 49 | 21 | 34 | 41 | 61 | 103 | 152 | 226 | 560 | 140 | | | | 1,338 |
| 50 to 54 | 14 | 17 | 14 | 31 | 56 | 66 | 87 | 208 | 390 | 60 | | | 943 |
| 55 to 59 | 8 | 7 | 7 | 19 | 27 | 35 | 27 | 58 | 119 | 120 | 18 | | 445 |
| 60 to 64 | 2 | 4 | 3 | 4 | 10 | 17 | 9 | 16 | 28 | 34 | 28 | 1 | 156 |
| 65 to 69 | 1 | 1 | | | 3 | 2 | 1 | 6 | 3 | 1 | 1 | | 19 |
| 70 & up | 1 | 1 | | 2 | 1 | | 1 | 1 | | | | 1 | 8 |
| Totals | 169 | 334 | 288 | 458 | 772 | 763 | 773 | 969 | 680 | 215 | 47 | 2 | 5,470 |

### Number of Employees - By Age Group - Females

| | Completed Years of Service | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Age | 0 | 1 | 2 | 3 to 4 | 5 to 9 | 10 to 14 | 15 to 19 | 20 to 24 | 25 to 29 | 30 to 34 | 35 to 39 | 40+ | Totals |
| < 25 | 38 | 89 | 25 | | | | | | | | | | 152 |
| 25 to 29 | 181 | 221 | 166 | 240 | 97 | | | | | | | | 905 |
| 30 to 34 | 71 | 116 | 99 | 189 | 397 | 127 | | | | | | | 999 |
| 35 to 39 | 86 | 117 | 95 | 177 | 369 | 427 | 98 | | | | | | 1,369 |
| 40 to 44 | 100 | 124 | 110 | 255 | 445 | 411 | 468 | 191 | | | | | 2,104 |
| 45 to 49 | 62 | 85 | 107 | 195 | 388 | 312 | 303 | 423 | 111 | | | | 1,986 |
| 50 to 54 | 43 | 31 | 40 | 73 | 167 | 183 | 210 | 190 | 197 | 43 | | | 1,177 |
| 55 to 59 | 22 | 9 | 14 | 34 | 54 | 62 | 100 | 107 | 89 | 42 | 17 | | 550 |
| 60 to 64 | 6 | 5 | 3 | 5 | 10 | 23 | 30 | 29 | 39 | 22 | 10 | 5 | 187 |
| 65 to 69 | | 3 | 1 | 2 | 4 | 1 | 4 | 2 | 5 | 6 | 3 | | 31 |
| 70 & up | 1 | | 1 | 1 | 1 | | 1 | | 2 | | | 1 | 8 |
| Totals | 610 | 800 | 661 | 1,171 | 1,932 | 1,546 | 1,214 | 942 | 443 | 113 | 30 | 6 | 9,468 |

Table C-1
(Continued)

# Teachers' Retirement System
## Active Members - Full Time
## Distribution of Employees and Salaries as of July 1, 1994
### Average Annual Salaries - By Age Group - Males

| Age | 0 | 1 | 2 | 3 to 4 | 5 to 9 | 10 to 14 | 15 to 19 | 20 to 24 | 25 to 29 | 30 to 34 | 35 to 39 | 40+ | Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Completed Years of Service | | | | | | | | | | | | |
| < 25 | 3,824 | 19,233 | 20,312 | 24,811 | | | | | | | | | 16,569 |
| 25 to 29 | 3,912 | 18,772 | 20,922 | 22,319 | 24,763 | | | | | | | | 18,527 |
| 30 to 34 | 2,500 | 21,781 | 22,011 | 23,187 | 27,068 | 30,211 | | | | | | | 24,060 |
| 35 to 39 | 7,622 | 21,509 | 24,681 | 25,616 | 28,511 | 31,909 | 34,225 | | | | | | 28,689 |
| 40 to 44 | 2,147 | 19,990 | 21,981 | 26,624 | 29,202 | 34,086 | 36,520 | 37,012 | | | | | 32,570 |
| 45 to 49 | 7,554 | 26,444 | 30,612 | 29,284 | 31,820 | 37,644 | 37,838 | 38,526 | 39,361 | | | | 36,424 |
| 50 to 54 | 8,251 | 27,654 | 27,738 | 29,917 | 32,554 | 37,059 | 40,950 | 41,145 | 40,573 | 40,621 | | | 38,761 |
| 55 to 59 | 5,205 | 30,590 | 36,808 | 38,638 | 32,113 | 39,413 | 41,216 | 39,540 | 43,809 | 41,077 | 40,480 | | 39,936 |
| 60 to 64 | 412 | 32,406 | 33,515 | 31,150 | 34,524 | 39,317 | 34,842 | 41,798 | 45,591 | 48,325 | 44,587 | 55,479 | 42,148 |
| 65 to 69 | 273 | 31,167 | | | 63,384 | 30,670 | 74,957 | 44,204 | 55,242 | 48,989 | 107,362 | | 49,747 |
| 70 & up | 1,584 | 1,450 | | 3,017 | 8,874 | | 51,044 | 39,015 | | | | 48,863 | 19,608 |
| Totals | 4,760 | 21,352 | 23,967 | 25,832 | 29,155 | 34,539 | 37,391 | 39,051 | 41,161 | 42,133 | 44,642 | 52,171 | 33,183 |

### Average Annual Salaries - By Age Group - Females

| Age | 0 | 1 | 2 | 3 to 4 | 5 to 9 | 10 to 14 | 15 to 19 | 20 to 24 | 25 to 29 | 30 to 34 | 35 to 39 | 40+ | Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Completed Years of Service | | | | | | | | | | | | |
| < 25 | 4,762 | 16,865 | 18,188 | | | | | | | | | | 14,057 |
| 25 to 29 | 3,719 | 16,357 | 18,385 | 20,169 | 21,895 | | | | | | | | 15,806 |
| 30 to 34 | 3,781 | 15,420 | 17,887 | 20,170 | 23,344 | 26,730 | | | | | | | 20,322 |
| 35 to 39 | 5,409 | 14,752 | 17,544 | 20,054 | 23,080 | 28,470 | 31,249 | | | | | | 22,749 |
| 40 to 44 | 4,161 | 13,368 | 16,545 | 20,347 | 24,363 | 29,440 | 32,470 | 35,449 | | | | | 25,661 |
| 45 to 49 | 3,203 | 13,351 | 17,438 | 20,542 | 25,033 | 30,481 | 33,692 | 35,367 | 36,865 | | | | 28,040 |
| 50 to 54 | 4,479 | 11,605 | 19,278 | 20,166 | 25,289 | 30,374 | 33,541 | 35,127 | 36,928 | 35,688 | | | 29,825 |
| 55 to 59 | 3,260 | 10,054 | 14,884 | 17,092 | 22,922 | 28,794 | 30,972 | 34,805 | 35,469 | 36,571 | 36,528 | | 29,291 |
| 60 to 64 | 2,904 | 3,248 | 18,414 | 18,316 | 22,263 | 30,060 | 30,426 | 34,077 | 36,378 | 34,876 | 34,984 | 32,923 | 30,460 |
| 65 to 69 | | 17,163 | 93 | 2,674 | 15,662 | 35,399 | 29,153 | 35,867 | 36,656 | 31,873 | 37,373 | | 26,773 |
| 70 & up | 3,545 | | 6,041 | 2,691 | 6,925 | | 13,162 | | 42,078 | | | 35,636 | 19,020 |
| Totals | 4,078 | 14,926 | 17,656 | 20,110 | 23,921 | 29,257 | 32,661 | 35,233 | 36,591 | 35,656 | 36,098 | 33,375 | 24,869 |

Table C-1
(Continued)

# Teachers' Retirement System
## Active Members - Full Time
## Distribution of Employees and Salaries as of July 1, 1994
### Annual Salaries in Thousands - By Age Group - Males

| | Completed Years of Service | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Age | 0 | 1 | 2 | 3 to 4 | 5 to 9 | 10 to 14 | 15 to 19 | 20 to 24 | 25 to 29 | 30 to 34 | 35 to 39 | 40 + | Totals |
| < 25 | 23 | 385 | 81 | 25 | | | | | | | | | 514 |
| 25 to 29 | 239 | 2,178 | 2,050 | 2,009 | 1,139 | | | | | | | | 7,614 |
| 30 to 34 | 55 | 915 | 1,189 | 2,365 | 4,710 | 1,208 | | | | | | | 10,442 |
| 35 to 39 | 137 | 989 | 987 | 2,203 | 5,446 | 7,403 | 2,601 | | | | | | 19,767 |
| 40 to 44 | 32 | 920 | 593 | 1,651 | 4,702 | 7,465 | 12,636 | 4,441 | | | | | 32,440 |
| 45 to 49 | 159 | 899 | 1,255 | 1,786 | 3,277 | 5,722 | 8,551 | 21,574 | 5,511 | | | | 48,735 |
| 50 to 54 | 116 | 470 | 388 | 927 | 1,823 | 2,446 | 3,563 | 8,558 | 15,823 | 2,437 | | | 36,552 |
| 55 to 59 | 42 | 214 | 258 | 734 | 867 | 1,379 | 1,113 | 2,293 | 5,213 | 4,929 | 729 | | 17,771 |
| 60 to 64 | 1 | 130 | 101 | 125 | 345 | 668 | 314 | 669 | 1,277 | 1,643 | 1,248 | 55 | 6,575 |
| 65 to 69 | | 31 | | | 190 | 61 | 75 | 265 | 166 | 49 | 107 | | 945 |
| 70 & up | 2 | 1 | | 6 | 9 | | 51 | 39 | | | | 49 | 157 |
| Totals | 804 | 7,132 | 6,903 | 11,831 | 22,508 | 26,353 | 28,903 | 37,841 | 27,989 | 9,059 | 2,084 | 104 | 181,511 |

### Annual Salaries in Thousands - By Age Group - Females

| | Completed Years of Service | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Age | 0 | 1 | 2 | 3 to 4 | 5 to 9 | 10 to 14 | 15 to 19 | 20 to 24 | 25 to 29 | 30 to 34 | 35 to 39 | 40 + | Totals |
| < 25 | 181 | 1,501 | 455 | | | | | | | | | | 2,137 |
| 25 to 29 | 673 | 3,615 | 3,052 | 4,841 | 2,124 | | | | | | | | 14,304 |
| 30 to 34 | 268 | 1,789 | 1,771 | 3,812 | 9,267 | 3,395 | | | | | | | 20,302 |
| 35 to 39 | 465 | 1,726 | 1,667 | 3,550 | 8,516 | 12,157 | 3,062 | | | | | | 31,143 |
| 40 to 44 | 416 | 1,658 | 1,820 | 5,189 | 10,842 | 12,100 | 15,196 | 6,771 | | | | | 53,990 |
| 45 to 49 | 199 | 1,135 | 1,866 | 4,006 | 9,713 | 9,510 | 10,209 | 14,960 | 4,092 | | | | 55,688 |
| 50 to 54 | 193 | 360 | 771 | 1,472 | 4,223 | 5,558 | 7,044 | 6,674 | 7,275 | 1,535 | | | 35,104 |
| 55 to 59 | 72 | 90 | 208 | 581 | 1,238 | 1,785 | 3,097 | 3,724 | 3,157 | 1,536 | 621 | | 16,110 |
| 60 to 64 | 17 | 16 | 55 | 92 | 223 | 691 | 913 | 988 | 1,419 | 767 | 350 | 165 | 5,696 |
| 65 to 69 | | 51 | | 5 | 63 | 35 | 117 | 72 | 183 | 191 | 112 | | 830 |
| 70 & up | 4 | | 6 | 3 | 7 | | 13 | | 84 | | | 36 | 152 |
| Totals | 2,488 | 11,941 | 11,671 | 23,549 | 46,216 | 45,232 | 39,650 | 33,189 | 16,210 | 4,029 | 1,083 | 200 | 235,457 |

Table C-1
(Continued)

# Teachers' Retirement System
## Active Members - Part Time
## Distribution of Employees and Salaries as of July 1, 1994
### Number of Employees - By Age Group - Males

| Age | 0 | 1 | 2 | 3 to 4 | 5 to 9 | 10 to 14 | 15 to 19 | 20 to 24 | 25 to 29 | 30 to 34 | 35 to 39 | 40+ | Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Completed Years of Service | | | | | | | |
| < 25 | 16 | 3 | 4 | | | | | | | | | | 23 |
| 25 to 29 | 68 | 27 | 4 | 1 | 1 | | | | | | | | 101 |
| 30 to 34 | 16 | 8 | 6 | 3 | 6 | 1 | | | | | | | 40 |
| 35 to 39 | 15 | 8 | 5 | 2 | 10 | 7 | | | | | | | 47 |
| 40 to 44 | 7 | 11 | 7 | 13 | 9 | 5 | 8 | 3 | | | | | 63 |
| 45 to 49 | 8 | 6 | 1 | 5 | 5 | 5 | 7 | 7 | 4 | | | | 48 |
| 50 to 54 | 6 | 3 | 1 | 4 | 7 | 5 | 2 | 7 | 5 | | | | 40 |
| 55 to 59 | 4 | 1 | | 1 | | 1 | 2 | 2 | 6 | 4 | | | 21 |
| 60 to 64 | 1 | 3 | 1 | 1 | 3 | 2 | 2 | | 3 | 4 | 1 | | 21 |
| 65 to 69 | | 1 | | | | | | | | | | | 1 |
| 70 & up | | | 1 | | | | | | 1 | | | | 2 |
| Totals | 141 | 71 | 30 | 30 | 41 | 26 | 21 | 19 | 19 | 8 | 1 | 0 | 407 |

### Number of Employees - By Age Group - Females

| Age | 0 | 1 | 2 | 3 to 4 | 5 to 9 | 10 to 14 | 15 to 19 | 20 to 24 | 25 to 29 | 30 to 34 | 35 to 39 | 40+ | Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Completed Years of Service | | | | | | | |
| < 25 | 43 | 12 | 10 | 1 | | | | | | | | | 66 |
| 25 to 29 | 128 | 64 | 27 | 19 | 10 | | | | | | | | 248 |
| 30 to 34 | 53 | 42 | 22 | 24 | 27 | 17 | 1 | | | | | | 186 |
| 35 to 39 | 68 | 48 | 44 | 67 | 45 | 34 | 9 | | | | | | 315 |
| 40 to 44 | 71 | 79 | 50 | 87 | 68 | 28 | 22 | 16 | | | | | 421 |
| 45 to 49 | 44 | 42 | 52 | 59 | 50 | 26 | 19 | 17 | 7 | | | | 316 |
| 50 to 54 | 26 | 15 | 24 | 30 | 28 | 24 | 11 | 8 | 3 | 4 | | | 173 |
| 55 to 59 | 6 | 4 | 9 | 12 | 16 | 11 | 6 | 4 | 4 | | 1 | | 73 |
| 60 to 64 | | | 1 | 8 | 11 | 3 | 7 | 3 | | 2 | 1 | | 36 |
| 65 to 69 | | 4 | 2 | 2 | 3 | 1 | 1 | 1 | | | | | 14 |
| 70 & up | | | 1 | 1 | 3 | | | | | | | | 5 |
| Totals | 439 | 310 | 242 | 310 | 261 | 144 | 76 | 49 | 14 | 6 | 2 | 0 | 1,853 |

| | |
|---|---|
| Total of Above | 2,260 |
| Part Time Participants with Salary Less Than $1,000 | 377 |
| Total Part Time Participants | 2,637 |

## Teachers' Retirement System

## Table C-2

## Distribution of Inactive Lives

Members Receiving Service Retirement Benefits as of July 1, 1994

| | Number of Persons | | Annual Benefits in Thousands | | Average Annual Benefits | |
|---|---|---|---|---|---|---|
| Age | Male | Female | Male | Female | Male | Female |
| <50 | 35 | 22 | $ 590 | $ 350 | $16,845 | $15,922 |
| 50 to 54 | 262 | 146 | 4,325 | 1,938 | 16,507 | 13,274 |
| 55 to 59 | 430 | 268 | 7,710 | 3,568 | 17,930 | 13,313 |
| 60 to 64 | 617 | 428 | 10,426 | 4,739 | 16,897 | 11,071 |
| 65 to 69 | 536 | 504 | 7,996 | 5,182 | 14,919 | 10,282 |
| 70 to 74 | 414 | 513 | 5,604 | 4,166 | 13,536 | 8,122 |
| 75 to 79 | 252 | 587 | 2,533 | 4,129 | 10,050 | 7,033 |
| 80 to 84 | 150 | 539 | 1,252 | 2,942 | 8,349 | 5,459 |
| 85 to 89 | 81 | 446 | 472 | 2,168 | 5,828 | 4,862 |
| 90 and up | 43 | 242 | 254 | 1,240 | 5,915 | 5,124 |
| Total | 2,820 | 3,695 | $41,162 | $30,423 | $14,596 | $ 8,233 |

Members Receiving Disability Retirement Benefits as of July 1, 1994

| | Number of Persons | | Annual Benefits in Thousands | | Average Annual Benefits | |
|---|---|---|---|---|---|---|
| Age | Male | Female | Male | Female | Male | Female |
| <50 | 9 | 10 | $ 69 | $ 64 | $ 7,642 | $ 6,423 |
| 50 to 54 | 11 | 10 | 95 | 68 | 8,610 | 6,846 |
| 55 to 59 | 14 | 19 | 116 | 166 | 8,318 | 8,715 |
| 60 to 64 | 12 | 11 | 120 | 68 | 10,039 | 6,143 |
| 65 to 69 | 12 | 18 | 93 | 116 | 7,720 | 6,440 |
| 70 to 74 | 7 | 17 | 62 | 84 | 8,882 | 4,953 |
| 75 to 79 | 9 | 23 | 63 | 102 | 6,984 | 4,415 |
| 80 to 84 | 4 | 10 | 34 | 51 | 8,498 | 5,061 |
| 85 to 89 | 1 | 7 | 4 | 32 | 4,280 | 4,578 |
| 90 and up | | 5 | | 26 | | 5,189 |
| Total | 79 | 130 | $ 656 | $ 776 | $ 8,308 | $ 5,970 |

## Teachers' Retirement System

### Table C-2
(Continued)

### Distribution of Inactive Lives

Survivors of Deceased Retired Members as of July 1, 1994

| | Number of Persons | | Annual Benefits in Thousands | | Average Annual Benefits | |
|---|---|---|---|---|---|---|
| Age | Male | Female | Male | Female | Male | Female |
| <50 | 7 | 12 | $ 30 | $ 67 | $ 4,298 | $ 5,590 |
| 50 to 54 | 4 | 7 | 15 | 91 | 3,758 | 12,964 |
| 55 to 59 | 5 | 15 | 17 | 146 | 3,486 | 9,736 |
| 60 to 64 | 6 | 28 | 45 | 292 | 7,569 | 10,420 |
| 65 to 69 | 5 | 39 | 26 | 360 | 5,218 | 9,219 |
| 70 to 74 | 9 | 70 | 51 | 517 | 5,622 | 7,389 |
| 75 to 79 | 5 | 49 | 26 | 415 | 5,285 | 8,469 |
| 80 to 84 | 14 | 54 | 62 | 298 | 4,401 | 5,514 |
| 85 to 89 | 4 | 52 | 18 | 279 | 4,539 | 5,370 |
| 90 and up | 5 | 20 | 21 | 106 | 4,294 | 5,292 |
| Total | 64 | 346 | $ 312 | $ 2,570 | $ 4,880 | $ 7,428 |

Survivors of Deceased Active Members as of July 1, 1994

| | Number of Persons | | Annual Benefits in Thousands | | Average Annual Benefits | |
|---|---|---|---|---|---|---|
| Age | Male | Female | Male | Female | Male | Female |
| <50 | 36 | 58 | $ 117 | $ 243 | $ 3,257 | $ 4,195 |
| 50 to 54 | 13 | 27 | 45 | 258 | 3,476 | 9,568 |
| 55 to 59 | 7 | 24 | 28 | 178 | 3,980 | 7,418 |
| 60 to 64 | 6 | 31 | 39 | 280 | 6,508 | 9,030 |
| 65 to 69 | 13 | 32 | 65 | 293 | 5,013 | 9,156 |
| 70 to 74 | 10 | 34 | 59 | 265 | 5,605 | 7,797 |
| 75 to 79 | 5 | 13 | 23 | 61 | 4,556 | 4,654 |
| 80 to 84 | 2 | 16 | 10 | 89 | 5,037 | 5,578 |
| 85 to 89 | 2 | 8 | 10 | 39 | 5,139 | 4,826 |
| 90 and up | 10 | 6 | 46 | 35 | 4,650 | 5,833 |
| Total | 104 | 249 | $ 440 | $ 1,741 | $ 4,233 | $ 6,992 |

## Teachers' Retirement System

### Table C-2
(Continued)

### Distribution of Inactive Lives

Terminated Vested Members as of July 1, 1994
Number of Persons

| Age | Male | Female | Total |
|---|---|---|---|
| <25 | 0 | 1 | 1 |
| 25 to 30 | 0 | 2 | 2 |
| 30 to 35 | 14 | 54 | 68 |
| 35 to 40 | 36 | 133 | 169 |
| 40 to 45 | 68 | 160 | 228 |
| 45 to 50 | 100 | 154 | 254 |
| 50 to 55 | 76 | 122 | 198 |
| 55 to 60 | 62 | 75 | 136 |
| 60 to 65 | 18 | 21 | 39 |
| 65 and up | 4 | 6 | 10 |
| Total | 378 | 727 | 1,105 |

Child Beneficiaries as of July 1, 1994*
Number of Persons

| Age | Number |
|---|---|
| <5 | 0 |
| 5 to 6 | 1 |
| 7 to 8 | 3 |
| 9 to 10 | 3 |
| 11 to 12 | 5 |
| 13 to 14 | 11 |
| 15 to 16 | 8 |
| 17 and up | 12 |
| Total | 43 |

* Child Beneficiaries all receive $200 per month, for a total of $103,200 per year.

# APPENDIX D

## Comparative Schedules

This section contains tables that summarize the experience of the System shown in present and past valuation reports.

Table D-1 shows a summary of the active members and the annuitants covered as of the various valuation dates.

Table D-2 summarizes the contribution rates determined by each annual actuarial valuation.

## Teachers' Retirement System

### Table D-1

### Membership Data

| Valuation Date (July 1) | Active Members | | | | | | |
|---|---|---|---|---|---|---|---|
| | Full-Time Members | Part-Time Members | Total Contributing Members | Annual Full-Time Salaries In Thousands | Average Full-Time Annual Salary | Average Age | Average Years of Service |
| 1987 | 13,105 | 1,955 | 15,060 | $340,481 | $25,981 | * | * |
| 1989 | 12,546 | 2,541 | 15,087 | $339,866 | $27,090 | * | * |
| 1992 | 13,502 | 3,141 | 16,643 | $401,092 | $29,706 | 42.4 | 11.6 |
| 1994 | 14,938 | 2,637 | 17,575 | $416,968 | $27,914 | 42.5 | 11.0 |

| Valuation Date (July 1) | Annuitants | | |
|---|---|---|---|
| | Number | Annual Benefits In Thousands | Average Annual Benefit |
| 1987 | 6,036 | $43,236 | $7,163 |
| 1989 | 6,330 | $49,546 | $7,827 |
| 1992 | 6,927 | $63,483 | $9,165 |
| 1994 | 7,530 | $78,183 | $10,383 |

*Not Available

## Teachers' Retirement System

### Table D-2

### Contibution Rates

| Valuation Date | Normal Cost Rate | | UAL | Total | Total |
|---|---|---|---|---|---|
| (July 1) | Employee | Employer | Rate | Employer Rate | Rate |
| 1989* | 7.044% | 1.783% | 5.676% | 7.459% | 14.503% |
| 1992 | 7.044% | 2.832% | 4.627% | 7.459% | 14.503% |
| 1994 | 7.044% | 2.450% | 5.020% | 7.470% | 14.514% |

*Valuation performed by Hendrickson, Miller & Associates, Inc.

## APPENDIX E

### Glossary

The following definitions are largely excerpts from a list adopted in 1981 by the major actuarial organizations in the United States. In some cases the definitions have been modified for specific applicability to the Teachers' Retirement System. Defined terms are capitalized throughout this Appendix.

**Actuarial Assumptions**

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement, and retirement; changes in compensation, rates of investment earnings, and asset appreciation or depreciation; procedures used to determine the Actuarial Value of Assets; and other relevant items.

**Actuarial Cost Method**

A procedure for determining the Actuarial Present Value of pension plan benefits and expenses and for developing an actuarially equivalent allocation of such value to time periods, usually in the form of a Normal Cost and an Actuarial Liability.

**Actuarial Gain (Loss)**

A measure of the difference between actual experience and that expected based upon a set of Actuarial Assumptions during the period between two Actuarial Valuation dates, as determined in accordance with a particular Actuarial Cost Method.

**Actuarial Present Value**

The value of an amount or series of amounts payable or receivable at various times, determined as of a given date by the application of a particular set of Actuarial Assumptions.

**Actuarial Valuation**

The determination, as of a valuation date, of the Normal Cost, Actuarial Liability, Actuarial Value of Assets, and related Actuarial Present Values for a pension plan.

**Actuarial Value of Assets**

The value of cash, investments and other property belonging to a pension plan, as used by the actuary for the purpose of an Actuarial Valuation.

**Actuarially Equivalent**

Of equal Actuarial Present Value, determined as of a given date with each value based on the same set of Actuarial Assumptions.

**Amortization Payment**

That portion of the pension plan contribution which is designed to pay interest on and to amortize the Unfunded Actuarial Liability.

**Entry Age Actuarial Cost Method**

A method under which the Actuarial Present Value of the Projected Benefits of each individual included in an Actuarial Valuation is allocated on a level basis over the earnings of the individual between entry age and assumed exit ages. The portion of this Actuarial Present Value allocated to a valuation year is called the Normal Cost. The portion of this Actuarial Present not provided for at a valuation date by the Actuarial Present Value of future Normal Costs is called the Actuarial Liability.

**Normal Cost**

That portion of the Actuarial Present Value of pension plan benefits and expenses which is allocated to a valuation year by the Actuarial Cost Method.

**Actuarial Liability**

That portion, as determined by a particular Actuarial Cost Method, of the Actuarial Present Value of pension plan benefits and expenses which is not provided for by future Normal Costs.

**Unfunded Actuarial Liability**

The excess of the Actuarial Liability over the Actuarial Value of Assets.

**Accrued Benefit**

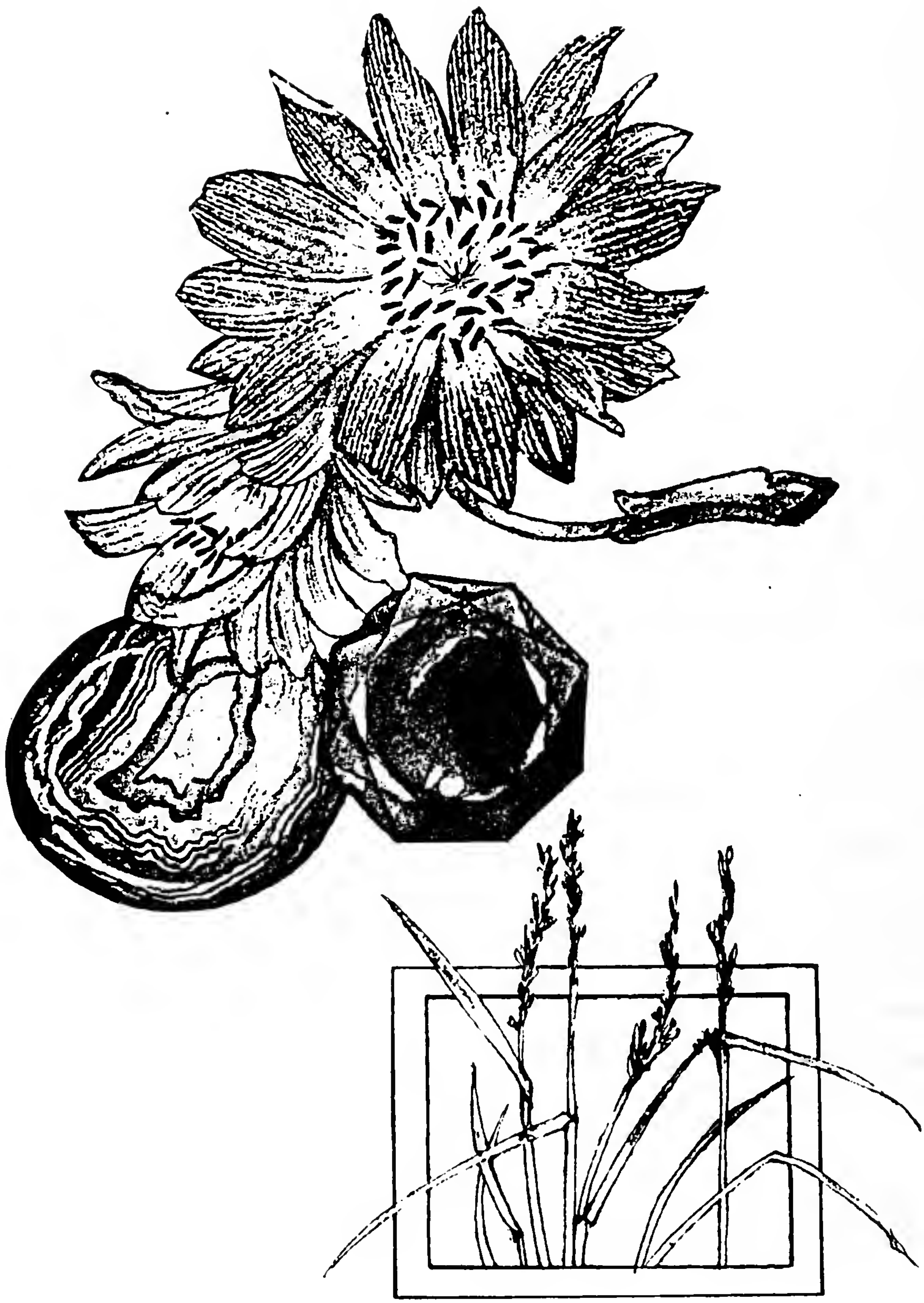
The amount of an individual's benefit (whether or not vested) as of a specific date, determined in accordance with the terms of a pension plan and based on compensation and service to that date.

**Projected Benefits**

Those pension plan benefit amounts which are expected to be paid at various future times under a particular set of Actuarial Assumptions, taking into account such items as the effect of advancement in age and past and anticipated future compensation and service credits.

**Unaccrued Benefit**

The excess of an individual's Projected Benefits over the Accrued Benefits as of a specified date.



# STATISTICAL SECTION

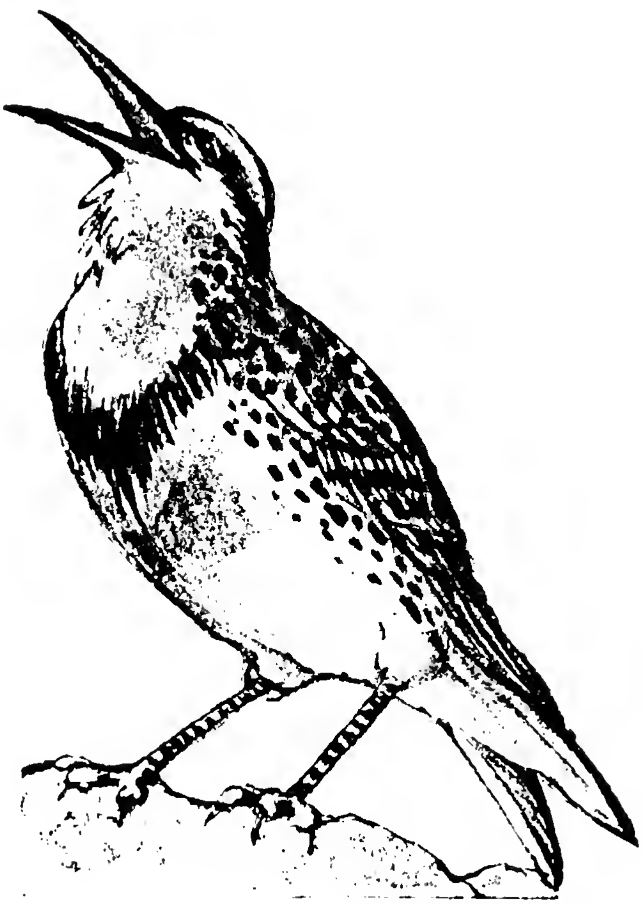
REVENUES BY SOURCE

EXPENSES BY TYPE

CONTRIBUTION RATES

ACTIVE MEMBERSHIP

RETIRED MEMBERSHIP



LOCATION OF BENEFIT RECIPIENTS

## Revenues By Source

| Year | Employee Contributions | Employer Contributions | Investment Income | Other | Total |
|---|---|---|---|---|---|
| 1984 - 1985 | $26,630,671 | $26,104,746 | $35,357,881 | | $88,093,298 |
| 1985 - 1986 | 27,603,165 | 27,322,124 | 45,404,420 | | 100,329,709 |
| 1986 - 1987 | 28,883,825 | 28,401,842 | 48,820,651 | | 106,106,318 |
| 1987 - 1988 | 28,800,383 | 28,324,488 | 51,877,012 | | 109,001,883 |
| 1988 - 1989 | 28,995,301 | 28,657,283 | 58,742,650 | | 116,395,234 |
| 1989 - 1990 | 30,549,466 | 30,646,428 | 63,748,295 | | 124,944,189 |
| 1990 - 1991 | 32,611,152 | 33,274,827 | 67,033,563 | | 132,919,542 |
| 1991 - 1992 | 34,677,311 | 35,759,120 | 70,680,973 | | 141,117,404 |
| 1992 - 1993 | 37,249,490 | 38,088,280 | 78,375,511 | | 153,713,281 |
| 1993 - 1994 | 38,748,884 | 39,164,487 | 73,073,714 | | 150,987,085 |

## Expenses By Type

| Year | Benefit Payments | Withdrawals | Admin. Expenses (1) | Investment Expenses | Other | Total |
|---|---|---|---|---|---|---|
| 1984 - 1985 | $32,498,499 | $4,812,090 | $334,023 | $104,330 | | $37,748,942 |
| 1985 - 1986 | 37,633,013 | 4,647,911 | 378,827 | 133,979 | | 42,793,730 |
| 1986 - 1987 | 40,292,222 | 4,807,517 | 442,966 | 125,607 | | 45,668,312 |
| 1987 - 1988 | 44,001,287 | 6,994,554 | 443,786 | 310,975 | | 51,750,602 |
| 1988 - 1989 | 47,214,491 | 5,213,596 | 474,560 | 179,743 | | 53,082,390 |
| 1989 - 1990 | 51,033,464 | 8,561,498 | 520,926 | 166,134 | | 60,282,022 |
| 1990 - 1991 | 54,869,861 | 4,243,421 | 485,918 | 191,692 | | 59,790,892 |
| 1991 - 1992 | 60,763,611 | 3,307,312 | 684,415 | 180,920 | | 64,936,258 |
| 1992 - 1993 | 66,012,320 | 3,971,610 | 581,165 | 188,655 | | 70,753,750 |
| 1993 - 1994 | 70,580,682 | 4,156,137 | 647,480 | 198,684 | | 75,582,983 |

(1) Includes depreciation after fiscal year 1984

## Teachers' Retirement System

## Contribution Rates

EMPLOYEE

| | |
|---|---|
| 1937 - 1973 | 5.000% |
| 1973 - 1975 | 5.125% |
| 1975 - 1977 | 6.125% |
| 1977 - 1983 | 6.187% |
| 1983 - 1993 | 7.044% |

EMPLOYER

| | |
|---|---|
| 1937 - 1945 | NONE |
| 1945 - 1959 | 3.750% |
| 1959 - 1969 | 4.000% |
| 1969 - 1971 | 4.500% |
| 1971 - 1975 | 5.125% |
| 1975 - 1977 | 6.250% |
| 1977 - 1981 | 6.312% |
| 1981 - 09/30/81 | 6.432% |
| 10/01/81 - 06/30/83 | 6.463% |
| 1983 - 1985 | 7.320% |
| 1985 - 1989 | 7.428% |
| 1989 - 1993 | 7.459% |
| 01/01/94 - | 7.470% |

Unless otherwise noted, contribution rate changes occur on July 1.

# Teachers' Retirement System

## Membership

| Period Ended | Active Members | Inactive Vested Members | Inactive Non-vested | Total |
|---|---|---|---|---|
| June 30, 1985 | 15,579 | 715 | 2,245 | 18,238 |
| June 30, 1986 | 15,951 | 695 | 2,362 | 19,008 |
| June 30, 1987 | 15,084 | 964 | 3,090 | 19,138 |
| June 30, 1988 | 15,041 | 1,025 | 3,444 | 19,510 |
| June 30, 1989 | 15,087 | 1,074 | 3,765 | 19,926 |
| June 30, 1990 | 15,702 | 1,137 | 4,080 | 20,919 |
| June 30, 1991 | 16,281 | 1,102 | 4,469 | 21,852 |
| June 30, 1992 | 16,643 | 1,167 | 4,890 | 22,700 |
| June 30, 1993 | 17,211 | 1,171 | 5,375 | 23,757 |
| June 30, 1994 | 17,439 | 1,113 | 5,761 | 24,313 |

## Retired Members and Benefit Recipients

| Period Ended | Retirement | Survivors | Disability | Child Benefits | Total |
|---|---|---|---|---|---|
| June 30, 1985 | 4,936 | 302 | 235 | 51 | 5,524 |
| June 30, 1986 | 5,158 | 311 | 239 | 58 | 5,766 |
| June 30, 1987 | 5,295 | 311 | 245 | 58 | 5,909 |
| June 30, 1988 | 5,475 | 320 | 249 | 59 | 6,103 |
| June 30, 1989 | 5,743 | 332 | 255 | 59 | 6,389 |
| June 30, 1990 | 5,903 | 334 | 265 | 56 | 6,558 |
| June 30, 1991 | 5,882 | 339 | 261 | 46 | 6,528 |
| June 30, 1992 | 6,042 | 343 | 263 | 47 | 6,695 |
| June 30, 1993 | 6,227 | 355 | 267 | 50 | 6,899 |
| June 30, 1994 | 6,531 | 358 | 271 | 38 | 7,198 |

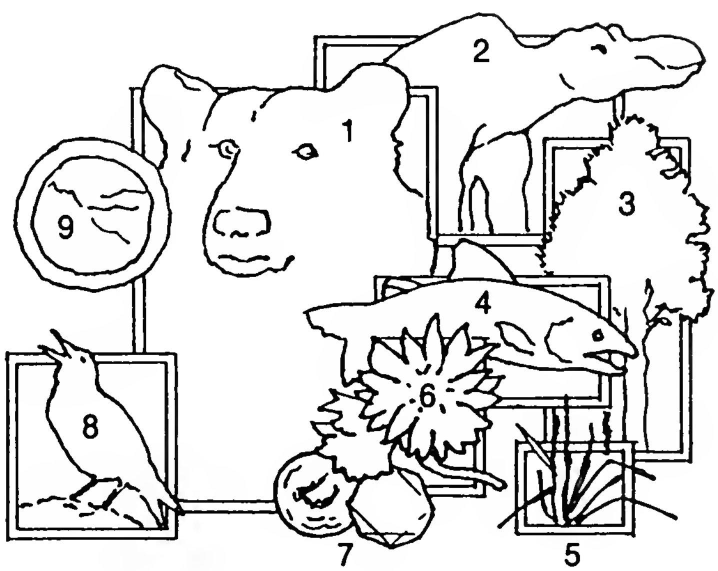
**LOCATION OF BENEFIT RECIPIENTS**

| | | | |
|---|---|---|---|
| Alabama | 7 | New Jersey | 2 |
| Alaska | 21 | New Mexico | 26 |
| Arizona | 155 | New York | 13 |
| Arkansas | 10 | North Carolina | 8 |
| California | 155 | North Dakota | 76 |
| Colorado | 62 | Ohio | 11 |
| Connecticut | 5 | Oklahoma | 9 |
| Florida | 30 | Oregon | 123 |
| Georgia | 6 | Pennsylvania | 10 |
| Hawaii | 3 | South Carolina | 6 |
| Idaho | 92 | South Dakota | 24 |
| Illinois | 11 | Tennessee | 7 |
| Indiana | 6 | Texas | 29 |
| Iowa | 13 | Utah | 35 |
| Kansas | 10 | Viginia | 9 |
| Kentucky | 1 | Washington | 264 |
| Louisiana | 2 | West Virginia | 2 |
| Maine | 6 | Wisconsin | 25 |
| Maryland | 4 | Wyoming | 46 |
| Massachusetts | 4 | APO | 4 |
| Michigan | 8 | Australia | 1 |
| Minnesota | 58 | Canada | 11 |
| Mississippi | 1 | Holland | 1 |
| Missouri | 16 | Puerto Rico | 1 |
| Montana | 5,600 | Scotland | 1 |
| Nebraska | 8 | Thailand | 1 |
| Nevada | 44 | TOTAL | *7,083 |
| New Hampshire | 1 | | |

*115 receipents recieve two benefits.

# Montana

# SYMBOLS




1 Grizzly Bear
2 Maiasaura, state fossil
3 Ponderosa Pine
4 Cutthroat trout
5 Bluebunch wheatgrass
6 Bitterroot flower
7 Agate and Sapphire gemstones
8 Western meadowlark
9 "Oro y Plata," state seal

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